

REMARKS

This is intended as a full and complete response to the Office Action dated August 1, 2006, having a shortened statutory period for response set to expire on November 1, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-18, 20-45, 49, 50, 55, and 69-90 remain pending in the application after entry of this response. Claims 1-8, 10, 12, 14-18, 20, 21, 25, 26, 30, 36, 43, 50, 55, 69, 70, and 72-77 have been amended and new claims 79-90 have been added. No new matter has been added by either the amendments or new claims. Claims 51-53 have been canceled without prejudice.

Support for new claim 79 may be found in original claim 36 and pg. 30, lines 3-4 of the specification.

Claim Rejections Under 35 USC § 103

Claims 1-18, 20-45, 49-53, 55, and 69-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chapman* (5,504,491), *Tubel* (5,730,219), *Yamazaki* (6,867,752) in view of *Alft* (2004/0190374). Applicants respectfully traverse the rejection.

Regarding claim 1 and its dependents, the Examiner cites the following as a motivation to combine the references:

... with the motivation of providing an earth penetrating apparatus for use with a boring machine, such as a horizontal directional drilling machine (see *Alft*, Page 2, Paragraph 0011).

Respectfully, the Examiner has merely reproduced the first sentence of *Alft*'s Summary of the Invention section, which broadly summarizes *Alft*'s disclosure. Applicants fail to recognize how the fact that *Alft* discloses a boring machine, more specifically a horizontal directional drilling machine, provides any motivation to combine *Alft* with the other cited references.

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Conversely, *Alft* teaches away from providing a communications module to a person at the rig as recited in claim 1 by criticizing open loop control schemes utilizing human input concerning drilling activities as follows:

Such dependency on human intervention within the control loop of a drilling system generally decreases overall excavation productivity, increases the delay time to effect necessary changes in drilling system activity in response to acquired drilling machine and drill head sensor information, and increases the risk of injury to operators and the likelihood of operator error.

(*Alft*, paragraph [0009]). *Tubel* similarly teaches away from claim 1 by touting an advantage of his completely automated downhole production control system as not requiring a workover rig which would require a human presence:

Presently, if a problem is detected at the well, the customer is required to send a rig to the wellsite at an extremely high cost (e.g., 5 million dollars for 30 days of offshore work). The well must then be shut in during the workover causing a large loss in revenues (e.g., 1.5 million dollars for a 30 day period). Associated with these high costs are the relatively high risks of adverse environmental impact due to spills and other accidents *as well as potential liability of personnel at the rig site*. Of course, these risks can lead to even further costs.

(*Tubel*, col. 4, lines 20-29, emphasis added). Further, *Tubel* teaches away from establishing a two-way data communication system by teaching that his system does not require an external control signal (col. 4, lines 52-55; and col. 5, lines 38-46; col. 14, lines 34-42).

Chapman and *Yamazaki* are non-analogous art. *Chapman* discloses a GPS system for emergency response personnel. *Yamazaki* discloses a wireless head mount display (HMD) unit for e-mail and browsing the Internet. *Yamazaki* does not even suggest an industrial application and neither reference suggests any application to drilling rigs. The Examiner has provided no reason why one of ordinary skill in the art would consider these references reasonably pertinent to the problem of remote communication with a drilling rig.

Therefore, the Examiner has not met the requirements for a prima facie case of obviousness for claim 1 and its dependents. Withdrawal of the rejection is respectfully requested.

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Regarding claim 7 on its own merits, the Examiner cites col. 8, lines 64-67 of *Tubel* as disclosing fishing activities. The cited portion discloses wells 14 extending from a platform (1 to N) through water 16, to ocean floor 18, and to formations under the ocean floor. Applicant asserts that the broadest reasonable construction of "fishing" is the removal of an object left in a wellbore (see <http://www.glossary.oilfield.slb.com/Display.cfm?Term=fishing>). Respectfully, this passage does not describe fishing activities. Withdrawal of the rejection is respectfully requested.

Regarding claim 13 on its own merits, the Examiner cites col. 20, lines 13-67 of *Tubel* as disclosing transmitting certain kinds of data (i.e, status, usage, and location) to a rental center. The cited portion of *Tubel* discloses performing a seismic study of a formation. Withdrawal of the rejection is respectfully requested.

Regarding claim 15 on its own merits, the Examiner cites col. 23, line 46 to col. 24, line 67 of *Tubel* as disclosing a portable communications module configured to be detachably attached to a hardhat. The cited portion of *Tubel* discloses landing a sensor in a side pocket mandrel in the well and subsurface valve having sensors. Further, *Yamazaki* does not disclose that the HMD is configured to be detachably attached to a hardhat. Withdrawal of the rejection is respectfully requested.

Regarding claim 17 on its own merits, the Examiner cites col. 18, lines 20-67 of *Tubel* as disclosing automatic recording of lengths of tubulars prior to insertion in the wellbore. The cited portion of *Tubel* discloses mounting sensors in a string of production tubing. Withdrawal of the rejection is respectfully requested.

Regarding claim 18 on its own merits, the Examiner cites col. 3, lines 65-67 of *Yamazaki* as disclosing measurement of torque developed between adjacent pieces of tubular being assembled. The cited portion of *Yamazaki* discloses a user, an HMD worn by the user, and a portable information terminal. Withdrawal of the rejection is respectfully requested.

Regarding claim 20 on its own merits, the Examiner cites col. 2, lines 4-7 of *Yamazaki* as disclosing providing a communications module on a hardhat and log-on data facilitating billing of hardhat usage. The cited portion of *Yamazaki* discloses displaying an image on the HMD worn by the user on his/her head and transmitting

information between the HMD and the portable information terminal. Withdrawal of the rejection is respectfully requested.

Regarding new claims 80-85 on their own merits, paragraph [0130] of *Alft* discloses only that data, files, e-mail, software updates, and communications may be sent from a remote site to the boring machine. *Alft* does not disclose that procedures (claim 80), much less detailed operational procedures (claims 81 and 82) for a specific piece of equipment (claims 83-85), may be sent from the remote site to the boring machine. *Yamazaki* discloses communicating typical Internet traffic (FIG. 2) between an Internet site and the HMD. *Chapman* provides data and voice capability between the base unit and the remote unit but discloses scant examples of what is actually communicated other than location and status information. *Tubel's* remote central control system may control downhole devices (col. 6, lines 33-42); however, *Tubel* does not disclose any communication between the remote central control system and a person.

Regarding claim 27 and its dependents, none of the cited references, either alone or in combination, teach, suggest, or disclose either a hard hat or a portable communication attachment attached to the hard hat. The Examiner cites col. 3, line 65 to col. 4, line 67 as disclosing these elements of claim 27. Webster's defines a hard hat as "a protective hat made of rigid material (as metal or fiberglass)" (<http://www.m-w.com/dictionary/hard%20hat>). None of *Yamazaki's* embodiments show the HMD as offering any protection to a user's head (FIGS. 3, 4, and 13). Withdrawal of the rejection is respectfully requested.

Regarding claim 42 and its dependents, none of the cited references teach, suggest, or disclose "providing a communications module having an external camera to an on-site person", as recited in claim 42. The Examiner seems to mistake the external camera for the display in the rejection of claim 42 as *Chapman* does not disclose any kind of camera. In the rejection of claim 27, the Examiner cites col. 15, lines 14-20 of *Tubel* as disclosing an external camera. The cited portion of *Tubel* discloses a camera as an example of downhole sensors 56 and 58. In the rejection of claim 22, the Examiner cites col. 9, lines 55-58 of *Yamazaki* as disclosing an external camera. The

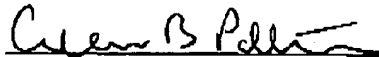
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cited portion of *Yamazaki* discloses an internal camera for tracking eye movements of a user. Withdrawal of the rejection is respectfully requested.

Conclusion

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



William B. Patterson
Registration No. 34,102
PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Attorney for Applicant(s)